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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,997	03/16/2004	William J. Begley	87887AEK	3335

7590

09/15/2006

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EXAMINER

GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/801,997

Applicant(s)

BEGLEY ET AL.

Examiner

Dawn Garrett

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 8-12, 18-20, 38, 39 and 48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 7, 13-17, 21-37, 40-47 and 49-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/22/2004, 6/23/05, 1/25/05
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. This Office action is responsive to the response to the election of species requirement dated July 11, 2006. Applicant elected the following species without traverse:

A naphthacene compound of Formula I where R2 and R4 are aryl and R1, R3, R5, and R6 are alkyl and with the ultimate species = Inv 2 at page 15;

A blue emitter of category (c) with ultimate species = B-6 at page 59;

A green emitter of category (a) with ultimate species = L30 at page 53.

Claims 1, 6, 7, 13, 14-17, 21-37, 40-47 and 49-52 appear to read upon the elected species. (Claim 38 is not included because neither compound in the claim was elected as the green emitter). Claims 2-5, 8-12 18-20, 38, 39, and 48 are withdrawn as non-elected.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15, 21, 25, 40 and 49-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 15 refers to “a yellow-light emitting naphthacene compound”. It is unclear if this compound is the same as the formula (I) compound of claim 1 or if it is a separate compound.

5. Claim 21 recites “wherein the blue light emitting material further includes a bis(azinyl)amine boron complex”. Since claim 1 does not expressly recite a blue light emitting material, but a layer instead, the further limitation of the material is unclear.

Art Unit: 1774

6. In claim 25 it is unclear if the “yellow light emitting materials” are the same as formula (I) in claim 1 or if separate compounds are being claimed.

7. Claim 40 sets forth a percentage “by volume of the host material”, but claim 35 does not clearly set forth a host for the electron transport layer and there are other host materials present in the device. Accordingly, the limitation is not clear.

8. Claim 49 (50 depends from 49) refers to “other dopants”; however, claim 1 upon which claim 49 depends does not expressly recite dopants for the hole-transporting layer and the blue-light emitting layers.

Clarification and/or correction are required.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

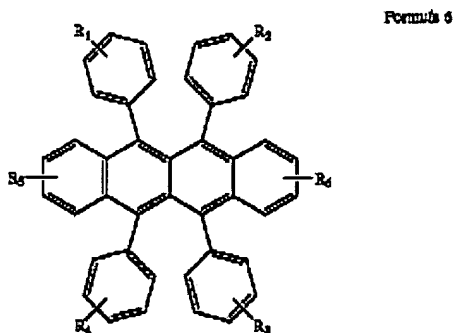
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 6, 7, 13-17, 21-37, 40-47, 49 and 52 are rejected under 35 U.S.C. 103(a) as being obvious over Hatwar et al. (US 6,967,062). The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention “by another”; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the

Art Unit: 1774

effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

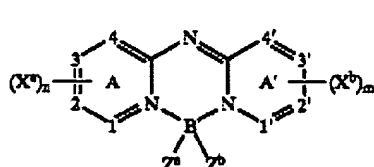
Hatwar discloses an organic light-emitting device producing white light that includes an anode, hole transporting layer, blue light-emitting layer, electron transporting layer and a cathode wherein the hole transporting layer may be selectively doped with a compound that emits light in the yellow region of the spectrum (see abstract). Preferred yellow-emitting dopant includes Formula 6 (see col. 12)



Although Hatwar does not exemplify the species under consideration, all of the required substituents are taught by Hatwar (see col. 12, lines 21-40). The R groups may include alkyl groups of from 1 to 24 carbon atoms and may include aryl groups (per claims 1, 6, 7, 13, 14, 26). It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed the rubrene derivative under consideration, because Hatwar teaches the required substituent groups are suitable for the derivative. A typical amount of rubrene derivatives used in

Art Unit: 1774

the hole transporting layer is 2% (see Table 2, col. 17-18) with regard to claims 15-17. A preferred class of blue emitting dopants includes formula 2 with regard to claims 21-22 (see col. 9-11:



Formula 2

A typical amount of blue dopant used in the emission layer is 2% by weight (see Tables and claim 13) with regard to claim 23. The thickness of the hole transporting layer is 5-300 nm per claims 24 and 26 (see claim 14). The OLED may comprise two hole transporting layers as required by claims 25 and 28 (see claim 15). The thickness of the blue light emitting layer is 5-100 nm per claim 27 (see claim 17). A hole injecting layer may be included having CFx, CuPc, or m-MTDATA per claim 29 (see claim 19). The thickness of the hole injecting layer is 0.1 nm – 100 nm per claim 30 (see claim 20). The thickness of the electron transporting layer is 5-150 nm per claim 31 (see claim 21). The cathode may comprise LiFAl, Mg:Ag, Al-Li and Mg-Al per claim 32 (see claim 22). The cathode may be transparent per claim 33 (see claim 23). The electron transporting layer may be transparent per claim 34 (see claim 24). The electron transporting layer may be doped with green light emitting dopant such as coumarin compounds C545T or C545TB per claims 35-37 (see claims 25-28). The green dopant is present in an amount of 0.1-5 % by volume per claim 40 (see claim 29). The device may further include a buffer layer on the cathode layer per claim 41 (see claim 30). The thickness of the buffer layer is 1-1000 nm per claim 42 (see claim 31). Hatwar teaches TFT substrates may be used with

Art Unit: 1774

OLEDs to address individual pixels per claim 45 (see col. 6, lines 1-4). The hole transporting layer(s) of the device may include an aromatic tertiary amine per claim 46 (see claim 33). The electron transporting layer may include copper phthalocyanine compounds per claim 47 (see claim 34). With regard to claim 49, Hatwar teaches co-dopants for the blue light emitting layer at col. 15, lines 58-63) and multiple naphthacene derivatives are taught as suitable for the hole transporting layer (see col. 12-13). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used more than one naphthacene derivative at a time in the hole transporting layer, because it is obvious to combine two compounds useful for the same purpose. With regard to claim 52, polymeric light emitting materials such as PVK may be incorporated (see col. 6, lines 61-67).

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 1774

12. Claims 1-49 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-34 of U.S. Patent No. 6,967,062. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the present application does not claim an electron transporting layer doped with the naphthacene compound, all of the limitations are within the claims of '062.

13. Claims 1-48 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-44 of U.S. Patent No. 7,037,601. Although the conflicting claims are not identical, they are not patentably distinct from each other because the features of the "first light emitting layer" set forth in '601 appear to be the same as the present doped hole transporting layer.

14. Claims 1-52 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-45 of U.S. Patent No. 6,875,524. Although the conflicting claims are not identical, they are not patentably distinct from each other because while '524 also includes a red dopant in the hole transporting layer in addition to the naphthacene yellow emitting compound, all of the required components are within the claims of '524.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

Art Unit: 1774

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dawn Garrett
Primary Examiner
Art Unit 1774

September 13, 2006